ATTACHMENT - REMARKS

In response to the Final Office Action mailed January 22, 2009, and further to the Advisory Action mailed July 1, 2009, and the Notice of Appeal submitted July 22, 2009, Applicants submit the following Amendment and Remarks.

Claims 1-17, 19 and 20 are pending in the present application. By this Amendment, Applicants have amended claims 1 and 7. Applicants respectfully submit that the present application is in condition for allowance based on the discussion which follows.

In the Final Office Action, and maintained in the Advisory Action, claims 1-6, 17 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over GR 1001555 (hereinafter "Agatzini") in view of U.S. Patent No. 5,642,863 (hereinafter "Patzelt") and U.S. Patent No. 4,173,519 (hereinafter "Parker"). Notwithstanding the prior arguments presented in the Request for Reconsideration After Final filed June 22, 2009, by this amendment Applicants have amended claims 1 and 7 to even further clarify that the beneficiation step is carried out by scrubbing, screening and classification. Subject matter basis for the amendment to claims 1 and 7 can be found in the present specification, as filed, page 9, lines 7-9 (*see, e.g.,* Example 1). As amended, the present method further relates to processing laterites via benefication. Applicants respectfully submit that one of ordinary skill in the art will readily recognize that laterites are not readily beneficiated. However, in the present method, recovery from laterites is accomplished by scrubbing, screening and classification which, in conjunction the other recited steps, further distinguishes the present method over the cited prior art.

Applicants respectfully submit that recovery of nickel and cobalt is accomplished using the present method via beneficiating which separates all fines and clay material from the low grade rejects fraction, in conjunction with the remaining steps claimed, is novel and non-obvious over the prior art. Recovery in the present method is accomplished by scrubbing, screening and classification as is appropriate for processing laterites. The nickel is predominantly associated with the very fine grain iron hydroxide material, such as goethite, rather than coarse low grade rejects fraction which are predominantly harder, coarser quartz material. Applicants have found that even if the fine grained material is treated in an atmospheric or high pressure leach, the low grade rejects fraction can still be treated by heap leaching without the need of pre-treatment to swell the fine and clay material, and still recover entrained nickel and cobalt in an economic manner that would otherwise be lost. Applicants respectfully submit that this discovery incorporated in the present method is contrary to what is taught in the prior art.

Applicants respectfully submit that upon review of the presently claimed method and the following discussion of the prior art, individually and in combination with each other, will find that nothing in the individual or combined prior art references would lead one of ordinary skill in the art to separate laterite ore into a high grade and a low grade and subsequently treat the low grade to a heap leach process, as claimed.

Queneau does not teach that the lower grade fraction may be heap leached. In fact, Queneau teaches away from the present method, in that the low grade fraction is discarded and it is only the higher grade fraction which is treated.

Patzelt relates to the processing of sulfide ores and not laterites. Given that Patzelt is not related to processing laterites, Patzelt is not faced with the problem where there are substantial fines and clays materials associated with the ore. Applicants have made the discovery that if the fines and clay materials associated with laterite ores are separated from the coarse siliceous rejects fraction, which is achieved by scrubbing, screening and classification, it is possible to economically recover entrained nickel and cobalt from the otherwise waste materials.

Parker is concerned with the recovery of gold and silver. Slimes, such as clay materials are removed from a coarse fraction prior to heap leaching. However, this is done so as to enable the recovery of any gold and silver from within the slime material. The processing of gold and silver materials has different objects than in the processing of nickel laterites and is generally carried out as a cyanide leach. Parker does not aim to develop a process where hitherto previously rejected ore fractions are subjected to a heap leach process. Quite simply, Parker does not teach one of ordinary skill in the art that when fines and clay material are removed, that it remains possible to recover nickel in an economic manner from ore that may previously have been discarded.

Referring specifically to the Examiner's remarks in the Advisory Action refuting Applicants' previous submission in the June 22, 2009 Request for Reconsideration After Final that one of ordinary skill in the art would not have recognized any benefit of modifying the disclosure of Agatzini by including various steps from other cited art references, Applicants respectfully submit that differences in the type of ore being processed, as well as what is disclosed in Agatzini, the primary reference cited, fails to make the claimed invention obvious in accordance with 35 U.S.C. § 103(a). As

previously noted, in order for two or more references to be combined in an obviousness-type rejection under 35 U.S.C. § 103(a), one must apply the underlying *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966) factors, in accordance with the holding in *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 389 (2007). These factors include determining the scope and content of the prior art. In examining the scope and content of the prior art, one must determine whether the prior art is in the field-of-invention of the claimed invention. *Andersen Corp. v. Pelecorp,* Fed. Cir. 2008, page 7. Further, in accordance with *KSR Int'l*, one of ordinary skill in the art must have seen a benefit from modifying the closest prior art reference, adding to it or subtracting from it, various elements in order to arrive at the claimed invention.

Contrary to the Examiner's assertion, Applicants respectfully submit that one of ordinary skill in the art would not have recognized any benefits of modifying Agatzini, including improved leaching efficiency as taught by Queneau and Patzelt. Queneau does not teach that the lower grade ore can be economically leached at all. Applicants respectfully fail to see how the Examiner can assert that Queneau would teach the benefits of modifying Agatzini as Queneau does not teach at all that economic recovery of nickel and cobalt could be achieved from the low grade rejects fraction. Similarly, Patzelt deals with sulfide ores and would not teach one skilled in the art to modify Agatzini to separate out the fines and clay from the low grade reject ore. Agatzini itself already deals with fines and clay materials by swelling the fines and clay materials in order to make the low grade laterite ore suitable for heap leaching. Contrary to this, the present process removes the fine and clay material by scrubbing, screening and classification and processes it with the high grade ore.

Further, in reply to the Examiner's refuting Applicants' prior argument that Agatzini does not address the issue of what to do with the coarse siliceous low grade rejects fraction, differences in the material processed and the means by processing in Patzelt would not lead one of ordinary skill in the art to combine various aspects of Patzelt with Agatzini.

Further, the heap leaching of coarse fractions of Patzelt does not in any way lead one skilled in the art to heap leach treat a fraction of low grade laterite ore, as claimed. The Examiner has referred to column 4, lines 34-55, of Patzelt which heap leaches the coarse fraction and subjects the fine fraction to tank atmospheric leaching. However, it must be emphasized that Patzelt is not dealing with nickel laterites, but rather with sulfide, which does not have the same issues of fines and clay materials as do laterites. It is an object of Patzelt to develop a method that optimizes the yield or extraction of the metals contained in the starting ore material. They achieve this by first crushing the ore and separating the crushed ore into the oversized ore and the finer particle size material. It is noted in column 2, lines 4-6, that placing the ore in a heap makes it easier for the admission of atmospheric oxygen into the pile which is necessary for treating sulfides, but unnecessary in treating laterite ores. Separation of the ore in Patzelt is determined by particle size and not the presence or otherwise of fines and clay material.

Moreover, a person skilled in the art would not apply the process of Patzelt to the treatment of nickel sulfide ores given the different chemistry and kinetics and would be even less likely to consider it to be applicable to nickel laterite ores. Processes have been piloted where ground nickel sulfide concentrates are treated by aerated pressure acid leaching, or atmospheric pressure vat bioleaching, but none have achieved

commercial success to date. This is because the chemistry and kinetics for leaching nickel sulfides are not as favorable as they would be for copper or some other metals which seems to be the aim of the process in Patzelt.

Furthermore, contrary to the Examiner refuting Applicants' prior argument, one of ordinary skill in the art would not have been led to treat coarse siliceous rejects ore (free of fines and clay material) by heap leaching, as Agatzini clearly discloses a method which treats ore that includes fines and clay material. Although, Agatzini does make reference to high grade ores and low grade ores, and claim 2 in Agatzini refers to low grade ores, fines and clay materials have not been separated from the low grade ores in Agatzini. Rather, Agatzini endeavors to ensure that such low grade ores may be subjected to heap leaching by using dilute sulfuric acid so as to cause swelling of the clay material to enable heap leaching to take place. This is outlined in page 2 of the Agatzini specification. The method used to accomplish heap leaching in Agatzini is in complete contrast to that in the present method, which separates out the fines and clay material by scrubbing, screening and classification. The present application recognizes that there is particular benefit in beneficiating the ore in this manner, such that the upgraded fraction includes the fines and clay materials and is subjected to pressure or atmospheric pressure leaching. Nickel and cobalt can still be economically recovered from the low grade rejects fraction by heap leach. Queneau, Patzelt and Parker do not provide motivation or any reason to lead one skilled in the art to remove the fines and clay materials from the rejects fraction as has already been outlined in detail.

Moreover, contrary to the Examiner's allegation refuting our prior argument that Queneau fails to provide the missing link between the process of Agatzini and the

present method, based on the Examiner alleging that Agatzini already economically recovers nickel from low and very low grade fractions, Applicants respectfully submit that, with regard to recovering nickel, Agatzini achieves this by swelling the fines and clay material that may be present in the low and very low grade fraction. Queneau may teach that higher recoveries of nickel can be achieved by HPAL of the fine grade ore fractions, but it does not teach at all how to process the low grade fraction. As the Examiner has noted, Queneau does discard the low grade fraction. Agatzini does recover nickel and cobalt from the low grade fractions; however, that fraction includes the fine and clay materials (which have been swelled by the application of dilute sulfuric acid). Those skilled in the art would recognize that the majority of nickel is contained within the fine material that may still exist in the low grade fraction of Agatzini. Applicants were the first to recognize that nickel and cobalt could still economically be recovered from a low grade fraction that does not include the fine and clay materials and would otherwise have been rejected.

Furthermore, in reply to the Examiner refuting our argument that Agatzini, in view of Queneau, it would have been superfluous to separate whole ore into high and low grade, as Agatzini teaches treating both together. Applicants respectfully submit that novelty in part of the present invention lies in the Applicants' discovery that nickel and cobalt can still be adequately recovered from low grade fraction that is absent of all fines and clay material. The prior art individually or in combination, as applied, fails to lead one of ordinary skill in the art to this discovery. Although the Examiner contends that motivation to separate ore into high and low grade comes from the expectation of higher nickel and cobalt recovery by using specific processes tailored to the different

ore taught by Patzelt, Queneau and Parker, the prior art in combination fails to provide such a motivation.

It may be true that Patzelt, Queneau and Parker teach that recovery processes could be tailored for the different grades of ore. What the present invention is about, is the discovery that nickel and cobalt can still be adequately recovered from the low grade fraction that is absent of all fines and clay materials. Patzelt, Queneau and Parker are not concerned with the recovery of the nickel and cobalt from low grade laterite ores. Agatzini may recover nickel and cobalt from a low grade nickel laterite ore, however this is ore that still contains fines and clay material and is done in a completely different manner. Agatzini is a different process, and Patzelt, Queneau and Parker do not suggest to the skilled addressee that a different result could be achieved by first removing the fines and clay materials from the low grade ore of Agatzini.

Moreover, contrary to the Examiner's refuting Applicants' prior argument, one of ordinary skill in the art would not have been led to modify Agatzini and/or Queneau to incorporate the various processing steps of Patzelt to arrive at the claimed process, as Patzelt is "nondirected to the same process as the present invention" and that Patzelt is not analogous art. Although the Examiner considers that Patzelt is directed to the analogous process of separating ore into coarse and fine fractions, Patzelt's is not an analogous process, as Patzelt is dealing with processing sulfide ores which have different chemistry and kinetic characteristics for leaching. Such ores are generally readily beneficiated by processes such as flotation (the fine material is beneficiated this way) (see column 3, lines 44-55). Laterites are less readily beneficiated, and the present method is now restricted to beneficiation by scrubbing, screening and

classification. The sulfide ores are amenable to crushing and Patzelt is particularly concerned with maximizing metal recovery by tank leaching ore which is limited to specific grain size distribution, *i.e.,* the beneficiated finely crushed ore, while on the other hand, heap leaching the larger grain sized ore. Separation in Patzelt is not determined by separating the fine iron hydroxide ores associated with the oxidized fine material of laterite ore, but rather about particular grain size that comes about through crushing.

Further, contrary to the Examiner's response to Applicants' prior argument, the present independent claims are non-obvious and, thus, patentably distinct over the cited prior art since, at the time of the present invention, it was not known that nickel could be economically recovered from coarse ore material and that Patzelt is insufficient in providing a disclosure regarding recovering nickel, as Patzelt is predominantly concerned with recovering copper from sulfide. In refuting Applicants prior arguments, the Examiner has maintained the position that Patzelt is analogous and provides motivation along with Queneau and Parker to separate the nickel ore of Agatzini into high and low grade coarse and fine fractions and heap leach the low grade fraction and tank leach the fines of a laterite in expectation of higher nickel recovery. The art cited by the Examiner may provide motivation to the skilled practitioner to tank leach the fines in expectation of higher nickel recovery. The key to the present invention, however, is to ensure that the low grade rejects fraction is free from fines and clay materials and when the low grade fraction is free from these materials, it is then viable to heap leach the rejects fraction. Agatzini already has a process for heap leaching the low grade fractions, and that involves swelling the fines and clay material to ensure that the low

grades fraction is adequately porous. Queneau may well teach of adequate recovery of nickel from tank leaching the fines, but that is not the point of the present application. Patzelt might also teach adequately that finer grained material is best leached by tank leaching but it is generally talking about copper recovery from sulfides. The ore of Patzelt is ground between two rolls and then divided into its oversized and fine material (which can be done with sulfide type ores) but is a different process from post-mining beneficiation of scrubbing, screening and classification to separate the fine and clay material from the rejects fraction. Parker relates to gold and silver recovery in a cyanide leach which would not lead one of ordinary skill in the art in the nickel industry to know whether it remains possible to recover nickel from a coarse siliceous low grade fraction by heap leaching. One of ordinary skill in the art would simply not be motivated or lead to modify Agatzini in view of the prior art.

Based on the foregoing, Applicants respectfully submit that claims 1-6, 17 and 19 are non-obvious under 35 U.S.C. § 103(a) from Agatzini, Queneau, Patzelt and Parker.

Claims 7-16 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Agatzini, Queneau, Patzelt and Parker, further in view of (U.S. Patent Application Publication No. 2002/0041840). Applicants respectfully submit that as discussed above with regard to the rejection of claims 1-16, 17 and 19 that the cited prior art applied fails to teach, let alone make obvious, the subject matter of claims 7-16 and 20. Further, Applicants respectfully submit that the additional reference, Arroyo, fails to make up the deficiencies of the cited prior art with regard to the claimed invention and, therefore, the combination of cited prior art, thus, make obvious the subject matter of claims 7-16 and 20.

In view of the foregoing, Applicants respectfully submit that the present application is in condition for allowance. Should the Examiner come to a contrary conclusion, the Examiner is invited to contact the undersigned at the number listed below.

Respectfully submitted,

Date: February 22, 2010

Signed By
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